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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RAYMOND A. MILIO and
DALE J. ESCHENBURG¹
Appellants

Appeal 2008-0518
Application 10/719,525
Technology Center 3600

Decided: June 9, 2008

Before JAMESON LEE, RICHARD TORCZON, and JENNIFER D.
BAHR, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The real party in interest is ArvinMeritor Technology, LLC.

A. Statement of the Case

This is a decision on appeal by an Appellant under 35 U.S.C. § 134(a) from a final rejection of claims 1-4, 8, 9, and 18-20. We have jurisdiction under 35 U.S.C. § 6(b).

References Relied on by the Examiner

Jones	US 3,715,936	Feb. 13, 1973
Pringle	US 4,234,120	Nov. 18, 1980
Ishibashi	JP 8-67108	Mar. 12, 1996

6 ASM Handbook Committee, Metals Handbook, Welding and Brazing, 270, Fig. 27, (8th Ed., 1971).

The Rejections on Appeal

The Examiner rejected claims 1 and 2 under 35 U.S.C. § 102(b) as anticipated by Ishibashi et al. (“Ishibashi”).

The Examiner rejected claims 3 and 4 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and Pringle.

The Examiner rejected claim 8 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and Jones.

The Examiner rejected claims 9 and 18-20 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and 6 ASM Handbook Committee, Metals Handbook, Welding and Brazing, 270, Fig. 27, (8th Ed. 1971) (“Metals Handbook”).

B. Issue

Has the Appellant shown error in the rejection of claims 1-4, 8, 9, and 18-20?

C. Summary of the Decision

The Appellant has not shown error in the rejection of claims 1-4, 8, 9, and 18-20.

D. Findings of Fact (Referenced as FF ¶ No.)

1. The invention relates to an axle housing cover that is welded to an axle housing to enclose the differential. (Spec. 1:5.)

2. Claims 1, 18, and 19 are independent and are reproduced below (Claims App. 11-13):

1. An axle comprising:

an axle housing including a surface;

a cover having a generally dome-shaped portion having a first thickness, said dome-shaped portion terminating in a perimeter edge having a second thickness greater than said first thickness, said perimeter edge including a height extending from said surface and in direction away from said surface, said height greater than said first thickness, wherein said perimeter edge provides a weld surface; and

a weld bead securing said perimeter edge to said surface of said axle housing.

18. An axle housing cover for securing to an axle housing comprising:

a generally dome-shaped portion having a first thickness, said dome-shaped portion terminating in a terminal end for engaging the axle housing, said dome-shaped portion including an outer perimeter edge adjacent to said terminal end and having a second thickness different than said first thickness, said outer perimeter edge lying within a boundary tangential to said dome-shaped portion immediately adjacent to said outer perimeter edge providing a weld

surface for receiving a weld bead for securing the cover to the axle housing.

19. An axle housing cover for securing to an axle housing comprising:

a generally dome-shaped portion having a first thickness, said dome-shaped portion terminating in a terminal end for engaging the axle housing, said dome-shaped portion including an outer perimeter edge adjacent to said terminal end without extending radially outwardly from said dome-shaped portion and having a second thickness different than said first thickness, said perimeter edge providing a weld surface for receiving a weld bead for securing the cover to the axle housing.

3. Ishibashi discloses a rear axle case that includes a circular opening formed in a rear axle case body for housing a differential gearbox.

(Ishibashi translation 4:¶ 6.)

4. Pringle discloses an axle housing assembly that includes gussets 50 embossed in a bottom portion 13 of a cup-shaped center housing 12 to provide added strength and support. (Pringle 3:43-46.)

5. Jones discloses an axle assembly with a differential case carrier having a cover plate 3 that is shown as having a recessed bore. (Jones 2:4-8 and Fig. 1.)

6. The following is a portion of the Appellant's specification including the underlined text added by the amendment filed March 9, 2005 (Spec.

¶ 21):

The cover 10 may include a recessed boss 26 having an opening 28, as shown in Figure 6, formed into the cover 10 by stamping. A carrier assembly 27, shown in phantom, may be installed onto the boss 26 so that the carrier may be connected to the differential assembly within the axle housing, which is a known arrangement in the art.

7. In Ishibashi, a bowl-shaped rear cover is welded to the axle case body on an inner notch formed between the cover and axle case body. (Ishibashi translation 4:¶ 6.)

8. The Metals Handbook discloses that when welding two hemispheres to one another the terminal ends of the hemispheres form joint edges that include beveled surfaces providing a gap on an outer surface of the hemispheres to receive weld metal (Metals Handbook 270:col. 3, ¶ 4 and Fig. 27).

E. Principles of Law

To establish anticipation under 35 U.S.C. § 102, each and every element in a claim, arranged as is recited in the claim, must be found in a single prior art reference. *Karsten Manufacturing Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). Anticipation can be found when a claim limitation is inherent or otherwise implicit in the relevant reference. *Standard Havens Products, Inc. v. Gencor Industries, Inc.*, 953 F.2d 1360, 1369 (Fed. Cir. 1991).

Obviousness is a legal determination made on the basis of underlying factual inquiries including (1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the art. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17 (1966). The Court in *Graham* further noted that “such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the

circumstances surrounding the origin of the subject matter sought to be patented.” *Id.* at 17-18.

One with ordinary skill in the art is presumed to have skills apart from what the prior art references explicitly say. *See In re Sovish*, 769 F.2d 738, 743 (Fed. Cir. 1985). A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton. *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742 (2007).

A combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *Id.* at 1731. When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious. *Id.* at 1740 (citing *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282 (1976)).

In an obviousness analysis, it is not necessary to find precise teachings in the prior art directed to the specific subject matter claimed. *Id.* at 1741. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). It is not necessary that the inventions of the references be immediately physically combinable, without change, to render obvious the invention under review. *See In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983).

During examination, claim terms are given their broadest reasonable interpretation consistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989); *In re Prater*, 415 F.2d 1393, 1404 (CCPA 1969).

Absent an express definition in the specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the examiner's definition unreasonable when the examiner can point to other sources that support his interpretation. *In re Morris*, 127 F.3d 1048, 1056 (Fed. Cir. 1997).

F. Analysis

The Appellant must show error in the Examiner's final rejection of claims 1-4, 8, 9, and 18-20. The Appellant argues the claims in five separate claim groupings.

Claim 1

We focus our analysis on the contested limitations. The Appellant disputes that Ishibashi discloses the limitations in claim 1 of "said perimeter edge including a height extending from said surface and in a direction away from said surface" and "said height greater than said first thickness."

The Examiner treated the thickness of the bowl-shaped cover 12 in Ishibashi as the first thickness. The Examiner found the end portions of the cover 12 to be the recited perimeter edge having a second thickness greater than the first thickness. As to the height of the perimeter edge, the Examiner found that Ishibashi discloses (Ans. 3:14-16):

said perimeter edge including a height extending from said surface (start of curvature of radius toward the surface of item "2") greater than said first thickness.

The Examiner further explained (Id. 7:4-7):

Ishibashi disclosed in fig. 3 a height which includes the distance (height h) measured from the radius of curvature extending from outer perimeter of cover 12 down towards body 2 is greater than the first thickness which is the thickness of cover 12.

Figure 3 of Ishibashi is reproduced below:

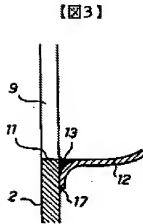


Figure 3 depicts a cross section of a cover 12 attached to a rear axle case body 2.

The Appellant argues that in order to meet the claim limitation that the height extends away from the surface of the axle housing, the height of the perimeter edge in Ishibashi must be viewed as the thickness of the dome cover. Thus, the Appellant contends that “Ishibashi discloses a dome having a first thickness that is equal to the height.” (Br. 6:18-19.) The Appellant characterizes Figure 3 as a “top view of the cover” and asserts that it does not support the Examiner’s position. (Br. 6:24 to 7:1.)

The Appellant’s characterization of Ishibashi’s Figure 3 as a top view is not consistent with the last line of page 8 of the English translation of Ishibashi, which clearly provides that Figure 3 is a cross sectional view. As articulated above, the Examiner pointed to Figure 3 and identified the height

of the peripheral edge of the cover 12 in Ishibashi as the distance from where the end of the cover begins to curve to where that end contacts the axle case body 2, measured in a direction perpendicular to the surface of the axle housing. The Examiner found that height to be extending away from the surface of the axle case body and to be greater than the thickness of the cover.

During examination, claim terms are given their broadest reasonable interpretation consistent with the specification. *In re Zletz*, 893 F.2d at 321; *In re Prater*, 415 F.2d at 1404. The Examiner's position on the measurement of the height of the peripheral end of the cover is quite reasonable. According to the Examiner, the peripheral edge starts where the cover first begins to flare out in a curved contour. That is a rational view of what constitutes a peripheral end. Based on that position, the height of the peripheral edge is indeed greater than the thickness of the cover. The Appellant's argument that the height is equal to the thickness of the cover does not take into account the height of the peripheral edge as determined by the Examiner. The Appellant has not shown error in the Examiner's determination.

We sustain the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Ishibashi.

Claim 2

Claim 2 is dependent upon claim 1 and includes the additional limitation:

said second thickness is up to approximately twice said first thickness.

The Appellant argues that the width of the perimeter edge in Ishibashi, which forms the second thickness, is greater than twice the first thickness and

does not meet the claim limitation. (Br. 7:7-9.) We understand the Appellant's argument to be that the width at the terminal or endmost portion of cover 12 where it contacts body 2 is greater than twice the first thickness. Based on the measurement of that width, the Appellant contends the limitation of claim 2 is not met.

The Examiner found the limitation of claim 2 to be present in Ishibashi, reasoning (Ans. 7:9-12):

Ishibashi disclosed in fig. 3 a second thickness that includes the wall thickness of cover 12 and any point on the radius of curvature extending away from the outer perimeter of the cover can be read as up to approximately twice the first thickness which is the thickness of the cover 12.

Thus, the Examiner found the width of perimeter edge of the cover 12 has a thickness that may be measured at any point on the radius of curvature of the end of the cover extending away from the outer perimeter between where the end starts to curve and flare out to where it contacts the axle body. The Examiner concluded that the thickness is, at least at some point along the length of the perimeter edge, up to twice the first thickness of the cover and found the limitation of claim 2 satisfied.

Neither the Appellant's claim 2 nor its parent claim 1 specifies that the second thickness is measured at the endmost or terminal portion of the perimeter edge. Moreover, the Appellant's specification does not expressly define the second thickness to be a single thickness measured only at that endmost portion. The specification provides that the second thickness is varying along the length of the perimeter edge as shown in the Appellant's Figure 3 (Spec. 5:7-8). We reject the argument that said second thickness must be determined at the very end of the peripheral edge.

Absent an express definition in the specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the examiner's definition unreasonable when the examiner can point to other sources that support his interpretation. *In re Morris*, 127 F.3d at 1056.

Applying the rule of broadest reasonable interpretation, we do not find the Examiner's determination that the second thickness may be obtained by measuring the width of the perimeter edge of the cover 12 in Ishibashi at any point on the radius of curvature of the end of the cover as it curves toward the axle case body 2 to be unreasonable or inconsistent with the Appellant's specification. The Appellant does not address why that measurement of the second thickness does not satisfy the corresponding limitation of claim 2. No error has been shown in the Examiner's determination.

We sustain the rejection of claim 2 under 35 U.S.C. § 102(b) as anticipated by Ishibashi.

Claims 3 and 4

Claims 3 and 4 are argued collectively as a group. Claim 3 is representative. Claim 3 is dependent on claim 1 and includes the additional limitation:

said dome-shaped portion includes a plurality of reinforcing ribs protruding therefrom.

The Examiner found that Ishibashi does not disclose the above-quoted limitation and turned to Pringle for the showing of an axle housing cover having protruding reinforcing ribs 50. The Examiner reasoned (Ans. 4:11-13):

It would have been obvious to one of ordinary skill in the art to have merely utilized the known reinforcing ribs into the axle housing cover of Ishibashi et al., in view of the teaching of Pringle, in order to add strength and support to the cover.

The Examiner further explained (Id. 7:20 to 8:4):

Examiner recited in par. 6 in Final office action dated 5/9/2005 that Pringle (US 4,234,120) teaches in fig. 1-2 reinforcing ribs 50 protrude and arrange radially about axle cover 13 (see col. 3, lines 43-46). Since Ishibashi and Pringle are both from the same field of endeavor (axle housing), it would have been obvious to one of ordinary skill in the art to modify the cover of Ishibashi with known reinforcing ribs, as taught by Pringle, in order to add strength and support to the cover, (Pringle, col. 3, lines 43-46).

The Appellant argues that the motivation of adding strength and support to the cover relied upon by the Examiner is not supported by any of the references. The Appellant further asserts that (Br. 7:20-22):

In fact, as stated by the Examiner in paragraph four of the specification, industry practice is to provide a cover that is too thick. Thus, reinforcing ribs would be unnecessary to the already unnecessarily thick dome.

We have reviewed the record and do not find any statement by the Examiner that it is standard or established industry practice to provide covers that are too thick. It is only the Appellant's own specification which indicates that conventional covers are unnecessarily thick. (Spec. 2:1-3.)

The Appellant does not dispute that the gussets 50 in Pringle are reinforcing ribs. Instead, the Appellant attacks the Examiner's stated motivation for using those gussets on the cover of Ishibashi. As noted by the Examiner, Pringle provides that "gussets 50 are embossed in the bottom portion 13 of the cup-shaped center housing 12 to provide added strength and support" (Pringle 3:43-46) (emphasis added). That disclosure in Pringle supports the Examiner's finding that the gussets would provide strength and

support for the cover of Ishibashi. The Appellant does not address the teaching of Pringle and has not shown error in the Examiner's reasoning.

As to the argument that it is industry practice to provide covers that are too thick, we do not find the Appellant's conclusory statement in the specification as evidence for that assertion. Moreover, the above-noted teachings of Pringle indicates the contrary. Pringle provides evidence that covers which are uniformly thick may need reinforcing ribs.

Accordingly, given the above, no error has been demonstrated in the Examiner's determination that it would be obvious to a person of ordinary skill in the art to incorporate the gussets of Pringle as reinforcing ribs in the cover of Ishibashi.

We sustain the rejection of claims 3 and 4 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and Pringle.

Claim 8

Claim 8 is dependent upon claim 1 and includes the additional limitation:

said dome-shaped portion includes a recessed boss with an opening receiving a carrier.

The Examiner determined that Ishibashi does not disclose that cover 12 includes a recessed boss with an opening receiving a carrier. The Examiner found that Jones discloses an axle cover 3 having a recessed boss with an opening (Ans. 4:17-18). The Examiner also pointed to a portion of the Appellant's specification and reasoned (Ans. 4:19-24):

In the amendment to the specification par. [21] by applicant "that the carrier assembly 27 installed on the boss 26 is known arrangement in the art". Therefore to mount the carrier assembly on the boss will be a matter of design choice. It would have been obvious to one of

ordinary skill in the art to modify the cover of Ishibashi et al. having a recessed boss with an opening, as taught by Jones, by mounting the carrier assembly on the well known alternative location on the recessed boss of the cover.

The Appellant argues that the feature of Jones relied upon by the Examiner “is not a carrier as understood by one of ordinary skill or by the plain dictionary definition, but is a plug.” (Br. 8:6-7.) The Appellant also disputes that the Examiner has established the necessary motivation to modify the cover of Ishibashi to incorporate a recessed boss with an opening receiving a carrier.

The following is a portion of the Appellant’s specification including the underlined text added by the amendment filed March 9, 2005 (Spec.

¶ 21):

The cover 10 may include a recessed boss 26 having an opening 28, as shown in Figure 6, formed into the cover 10 by stamping. A carrier assembly 27, shown in phantom, may be installed onto the boss 26 so that the carrier may be connected to the differential assembly within the axle housing, which is a known arrangement in the art.

The Appellant does not contest the Examiner’s conclusion that the above-quoted portion of the specification is a teaching that a carrier assembly installed on a boss is a known arrangement in the art. The Appellant also does not contest that Jones provides evidence that axle housing covers are known to include a recessed boss with an opening. Regardless of whether the element of Jones that is received in the recessed boss is a carrier or a plug, that element is received in an opening. Thus, the evidence suggests that an axle housing cover is understood to include a recessed boss with an opening and that a carrier assembly is understood to be installed on a boss.

A combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR*, 127 S. Ct. at 1739. When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious. *Id.* at 1740 (citing *Sakraida v. AG Pro, Inc.*, 425 U.S. 273 (1976)).

Here, the Appellant does not dispute that the prior art elements relied upon by the Examiner are familiar or old elements. The Examiner found that the combination of those elements satisfies claim 8 as it would suggest to a person of ordinary skill in the art a dome-shaped axle housing cover receiving a carrier unit in the opening of a recessed boss formed in the cover. In making that finding, the Examiner reasoned that each element would perform the same function in the combination as that in the prior art from which it came. The Appellant has not shown error in that reasoning.

We sustain the rejection of claim 8 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and Jones.

Claims 9 and 18-20

Claims 9 and 18-20 are argued collectively as a group. Each of claims 9, 18, and 19 include a limitation that was found by the Examiner not to be present in Ishibashi. Those limitations are reproduced below. (Claims App. 12-13.)

Claim 9 is dependent on claim 1 and includes the additional limitation:

wherein dome-shaped portion includes a concave exterior surface within said perimeter edge defined by a terminal portion of said concave exterior surface.

Claim 18 is independent and includes the limitation:

said outer perimeter edge lying within a boundary tangential to said dome-shaped portion immediately adjacent to said outer perimeter edge providing a weld surface for receiving a weld bead for securing the cover to the axle housing.

Claim 19 is independent and includes the limitation:

said dome-shaped portion including an outer perimeter edge adjacent to said terminal end without extending radially outwardly from said dome-shaped portion and having a second thickness different than said first thickness.

The Examiner pointed to page 270 and Figure 27 of the Metals Handbook to suggest each of the above-noted limitations in the prior art.

As to claims 9 and 18, the Examiner found (Ans. 5:14-17):

Metals Handbook, page 270, fig. 27 teaches a hemisphere having an outer perimeter edge lying within a boundary tangential to dome-shaped portion immediately adjacent to said outer perimeter edge, wherein the outer perimeter edge can provide a weld surface.

The Examiner then reasoned (Ans. 5:18-21):

One of ordinary skill in the art would modify the cover Ishibashi et al., as taught by Metals Handbook, page 270, fig. 27, is a matter of design choice and an alternate equivalent of a known terminal end of a dome-shaped cover depending upon space for welding the cover to the axle housing in order to strengthen the welded joint.

As to claim 19, the Examiner found (Ans. 6:9-12):

Metals Handbook, page 270, fig. 27, teaches a hemisphere having an outer perimeter edge adjacent to a terminal end extending radially inwardly from the dome-shaped portion and a terminal end thickness greater than the thickness of the dome-shaped wall wherein the outer perimeter edge can provide a weld surface.

The Examiner then reasoned (Ans. 6:13-18):

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the terminal end [of Ishibashi] by extending radially inwardly instead of radially outwardly in view of the teaching of Metals Handbook, page 270, fig. 27, in order to strengthen the welded joint for thicker welds. Since it had been held that a mere reversal of the essential parts of a device involves routine skill in the art. In re Einstein, 8 USPQ 167.

The Appellant disputes that the Examiner has provided proper motivation to support combining any of the teachings of the Metals Handbook with the axle housing cover of Ishibashi. (Br. 8:17 to 10:16.)

The Metals Handbook discloses that when welding two hemispheres to one another the terminal ends of the hemispheres form joint edges that include beveled surfaces providing a gap on an outer surface of the hemispheres to receive weld metal (Metals Handbook 270:col. 3, ¶ 4 and Fig. 27). The Examiner found the hemispheres to be dome-shaped portions having terminal ends that are thicker than the wall thickness of the dome-shaped portions. (Ans. 9:3-6.) Ishibashi discloses that a bowl-shaped rear cover is welded to an axle case body at an inner notch formed between the cover and axle case body. (Ishibashi translation 4:¶ 6.) As noted in the above-quoted text, the Examiner determined that a person of ordinary skill in the art would know to select the known weld configuration taught in the Metals Handbook to attach the cover 12 to the axle case body 2 in Ishibashi.

The Appellant argues that the references do not indicate that the weld in Ishibashi is not strong enough or would benefit from a different weld configuration. (Br. 8:25 to 9:3.) The Appellant also argues that the mating

weld surfaces of Ishibashi could not incorporate the tapered (beveled) surfaces of the Metals Handbook. (*Id.* at 9:4-7).

However, in an obviousness analysis, it is not necessary to find precise teachings in the prior art directed to the specific subject matter claimed. *KSR*, 127 S.Ct. at 1741. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d at 425. It is not necessary that the inventions of the references be immediately physically combinable, without change, to render obvious the invention under review. *See In re Sneed*, 710 F.2d at 1550. A person of ordinary skill in the art is a person of ordinary creativity, not an automaton. *KSR*, 127 S.Ct. at 1742.

Here, Ishibashi and the Metals Handbook each provide a predictable solution to the problem of welding a dome shaped component to another surface. A person of ordinary skill in the art would reasonably select either of the two known welding options to attach the dome shaped cover to the axle case body in Ishibashi. The Examiner reasoned that in selecting the weld joint taught in the Metals Handbook, a person of ordinary skill in the art would include the terminal ends shown and described in the Metals Handbook for the welding technique. To perform that technique, the terminal ends are formed to include thicker inwardly extending portions and beveled surfaces to receive weld metal. The Appellant's argument that Ishibashi could not incorporate the beveled surfaces of the Metals Handbook does not reflect an approach to resolving obviousness that takes into account

the ability of a person of ordinary creativity. That person, having selected the welding joint of the Metals Handbook, would make any modifications necessary to the welding surfaces to carry out the welding technique. The Examiner determined that once the weld joint of the Metals Handbook is combined with the cover of Ishibashi, claims 9 and 18-20 are satisfied. No error has been shown in that determination.

We have considered the Appellant's arguments against the Examiner's alternate reliance on a reversal of parts rationale. (Br. 10:5-16.) However, the reversal of parts rationale is unnecessary in light of the sound reasoning discussed above. We do not reach the Appellant's argument in that regard.

We sustain the rejection of claims 9 and 18-20 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and the Metals Handbook.

G. Conclusion

The rejection of claims 1 and 2 under 35 U.S.C. § 102(b) as anticipated by Ishibashi is **affirmed**.

The rejection of claims 3 and 4 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and Pringle is **affirmed**.

The rejection of claim 8 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and Jones is **affirmed**.

The rejection of claims 9 and 18-20 under 35 U.S.C. § 103(a) as unpatentable over Ishibashi and the Metals Handbook is **affirmed**.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

Appeal 2008-0518
Application 10/719,525

AFFIRMED

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